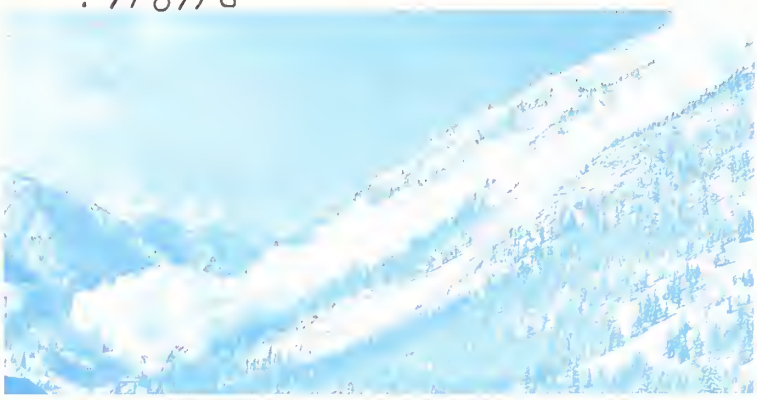

Avalanche Notes

U.S. Forest Service
Westwide Avalanche Network

APRIL 1992

April snowfall was meager at best, pitiful at worst. Alyeska, AK received but 12% of its April average. It was the only month of the winter that Alyeska got below-normal snows. In the Cascades, Mt. Rainier, WA recorded 23" of snow on the 5th-6th, but finished April with 66% of normal. Mt. Hood Meadows, OR got 60%. The Sierra of California received certifiable pitiful snows: Sugar Bowl got 2", Mammoth Mt., 1", and both Alpine Meadows and Squaw Valley, zero! It was the final touch to a dismal snow season there.

In Utah, Snowbird recorded but 24% of normal, while in Colorado, Winter Park got 47%; Gothic, 60%; Berthoud Pass, 63%; Copper Mt., 78%; and Arapahoe Basin, about 90%.

Two fatal avalanche accidents occurred in April, both on the 1st. At Snowbird, UT, a group of skiers left the ski area boundary to get hot video footage of their descent. They got more than they bargained for. The 21-year-old victim triggered a small slab that carried him over a cliff and triggered a second slide on a lower slope that carried him about 850 feet down the fall line. The other party members located the victim with a beacon in about 20 minutes and uncovered him from 7 feet of snow. Resuscitation efforts were unsuccessful.

Also on the 1st, at Berthoud Pass, CO, a party of 13 skiers were in the backcountry when three skiers triggered a 4-foot hard slab. Two victims were partly buried, one was totally buried. He was quickly located with a beacon and dug out from 4 feet of snow in 10 minutes. Despite the fast recovery, he never responded to resuscitation and died of suffocation.

A total of six incidents were reported in April, resulting in 10 people being caught, 3 partly buried, 3 buried, 1 injured, and two killed. One car was totalled when hit by an avalanche on Vail Pass, CO on the 11th.

FEBRUARY REVISITED

One more death attributable to the February Massacre has become known. A backcountry skier had been missing since February 13 near Mt. Rose, NV. On April 29, his body melted out in the runout of an avalanche path. Both skis were broken but still attached to his boots. This incident increased the February death toll from 12 to 13, and the winter total to 18.

Rocky Mountain Forest and Range Experiment Station

WINTER SUMMARY

Table 1 lists avalanche statistics for the past 22 winters. This year was below average in the number of avalanches reported because of overall low snowfall, but above normal in avalanche deaths -- 18 through the end of April. Property damage was light, about $70,000.

Table 2 presents snowfall totals for all Westwide sites with complete weather data for the 4-month period of December-March. Only Alyeska managed above-normal snows for both the 4-month and 6-month periods this winter. Teton Pass was the driest, relative to normal.

Table 3 lists avalanche totals for all sites reporting this winter.

AN HISTORICAL NOTE TO THE PHOTO ON THE FRONTISPIECE OF AVALANCHE NOTES

It was 30 years ago that Hans Frutiger of the Swiss Avalanche Institute came to Colorado to work with Pete Martinelli in establishing an avalanche research project for the US Forest Service. On January 21, 1962, while Hans was in Fort Collins, an avalanche at Twin Lakes, CO, demolished several houses and killed seven people. Hans arrived at the site of the disaster early on the morning of January 22. It was brightly sunny. At 1050 am, the Highway Department shot an avalanche that came roaring down Perry Mountain and filled the valley with a large powder cloud. Hans snapped a picture at that moment, a picture that you have seen since 1973 as the frontispiece for Avalanche Notes. So the photo taken by Hans Frutiger, now retired from the Swiss Avalanche Institute, still serves us after 30 years. And now you know ... the rest of the story.

Table 1: Annual avalanche summaries for the U.S.

		PEOPLE				VEHICLES		AVALANCHE DAMAGED			ESTIMATED
WINTER	AVALANCHES	C	B	I	K	BUR	DAM	BLDGS	LIFTS	MISC	PROPERTY DAMAGE
1991-92	5,522	150	66	17	18	13	8	0	1	2	$ 70,000
1990-91	7,049	134	54	12	8	8	2	2	0	1	160,000
1989-90	6,122	141	58	16	8	14	8	3	0	3	150,000
1988-89	7,385	143	55	4	7	33	6	2	0	8	2,216,000
1987-88	5,338	148	50	13	8	7	5	2	0	25	650,000
1986-87	5,036	128	62	13	23	5	0	3	0	1	175,000
1985-86	7,437	102	49	11	15	18	7	6	1	3	150,000
1984-85	6,903	115	42	18	14	8	0	4	0	2	80,000
1983-84	7,161	122	42	20	14	27	7	4	0	6	140,000
1982-83	11,822	174	68	20	14	32	11	5	4	3	80,000
1981-82	10,102	212	78	16	19	77	25	10	8	8	1,700,000
1980-81	5,695	131	58	7	23	5	1	0	2	0	10,000
1979-80	10,669	136	44	9	6	34	16	7	1	19	650,000
1978-79	9,420	159	62	16	11	54	24	5	1	4	1,250,000
1977-78	11,151	155	71	16	17	19	5	5	3	2	300,000
1976-77	3,764	98	35	13	10	3	0	2	0	0	500
1975-76	7,905	177	81	15	17	13	6	1	1	1	100,000
1974-75	10,387	195	79	9	22	30	5	4	1	2	150,000
1973-74	11,782	159	92	13	13	54	16	11	2	7	300,000
1972-73	9,965	92	35	3	5	11	1	4	2	2	200,000
1971-72	6,975	168	63	17	5	21	4	11	2	12	300,000
1970-71	4,066	58	46	10	12	19	3	13	2	8	500,000
AVERAGE	7,800	140	58	13	13	23	8	5	2	6	$ 424,000

Table 2: Snowfall totals for the winter of 1991-92

State and Site	Dec-Mar (inches)	% of Normal	Nov-Apr (inches)	% of Normal
Alaska				
Alyeska	579	163%	628	125%
Eaglecrest	162			
California				
Alpine Meadows	183	69%	207	61%
Heavenly Valley	86			
June Mountain	163			
Squaw Valley	143	63%	156	58%
Sugar Bowl	231			
Colorado				
Arapahoe Basin	149	72%	264	
Aspen Highlands	114	67%		
Aspen Mountain	106	65%		
Aspen Snowmass	33			
Bear Lake	107		179	
Beaver Creek	167	80%		
Berthoud Pass	157	78%	285	95%
Breckenridge	116	55%		
Copper Mountain	122	70%	218	85%
Crested Butte	112	68%		
Eldora	113			
Gothic	133	57%	222	68%
Loveland Basin	180	79%		
Monarch	171	91%	256	
Red Mountain Pass	183	86%		
Steamboat	144	58%		
Sunlight	109	61%		
Telluride	145	78%		
Vail	239	90%		
Winter Park Ski Area	183	71%		
Winter Park Town	114	75%	189	84%
Wolf Creek	181	67%		
Idaho				
Schweitzer Basin	148			
Sun Valley	66	44%		
Montana				
Big Mountain	139	57%		
Big Sky	111	58%		
Bridger Bowl	103	44%		
Oregon				
Mt. Hood Meadows	161	43%	235	50%
Utah				
Alta	209	59%	342	71%
Snowbird	167	49%	282	59%
Washington				
Crystal Mountain 1	149	57%		
Crystal Mountain 2	151	43%		
Mt. Rainier-Paradise	287	57%	446	66%
Snoqualmie Pass	155			
Stevens Pass U.S. 2	184	53%		
Wyoming				
Grand Targhee	130			
Jackson Hole	162	56%		
Teton Pass	73	32%		

Table 3: Avalanche totals for the winter of 1991-92

	Ski Areas	No.
1.	Alta, UT	580
2.	Alpine Meadows, CA	553
3.	Crystal Mountain, WA	437
4.	Snowbird, UT	375
5.	Stevens Pass, WA	318
6.	Alyeska, AK	258
7.	Mt. Hood Meadows, OR	244
8.	Bridger Bowl, MT	231
9.	Squaw Valley, CA	225
10.	Kirkwood Meadows, CA	221
11.	Solitude, UT	219
12.	Big Sky, MT	159
13.	Aspen Highlands, CO	146
14.	Sugar Bowl, CA	130
15.	Wolf Creek, CO	127
16.	Arapahoe Basin, CO	110
16.	Aspen Snowmass, CO	110
18.	Alpental, WA	108
19.	Jackson Hole, WY	98
20.	Telluride, CO	87
21.	Mt. Rose/Slide Mt., NV	47
22.	Heavenly Valley, CA	44
23.	Monarch, CO	39
24.	Big Mountain, MT	34
25.	Aspen Mountain, CO	32
26.	Park West, UT	23
27.	June Mountain, CA	22
28.	Crested Butte, CO	21
28.	Grand Targhee, WY	21
30.	Vail, CO	20
30.	Winter Park, CO	20
32.	Copper Mountain, CO	17
33.	Breckenridge, CO	16
33.	Loveland Basin, CO	16
35.	Sun Valley, ID	15
35.	Taos, NM	15
37.	Mammoth Mountain, CA	12
38.	Sunlight, CO	10
39.	Beaver Creek, CO	8
40.	Steamboat, CO	5
41.	Ski Cooper, CO	3
42.	Keystone, CO	2

	Highways, Mines, Nat. Parks and Backcountry Areas	No.
1.	Gothic, CO	155
2.	Berthoud Pass Res. Area, CO	66
3.	Snoqualmie Pass I-90, WA	35
4.	Red Mountain Pass, CO	27
5.	Loveland Pass, CO	17
6.	Urad-Henderson Mine, CO	14
7.	Berthoud Pass U.S. 40, CO	9
8.	Stevens Pass U.S. 2, WA	8
8.	Teton Pass, WY	8
10.	Mt. Rainier Nat. Park, WA	4
11.	Vail Pass, CO	1

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

APRIL 1992
SUMMARY OF WEATHER AND SNOW CONDITIONS

AREA	SNOWFALL				WATER EQUIVALENT							SNOW DEPTH				TEMPERATURE			WIND SPEED AND DIRECTION					
	TOTAL SNOWFALL IN.	AVG DEN	MAX IN 24 HR. IN.	MAX D A T E	TOTAL WATER IN.	MAX IN 24 HR. IN.	MAX D A T E	NUMBER OF DAYS GE .1	GE .2	GE .5	GE 1.0	MAX IN.	D A T E	MIN IN.	AVG IN.	MEAN MAX DEGREES F	MEAN MIN DEGREES F	AVG DEGREES F	AVG FOR MO. MPH	6 HOUR PERIODS GE 15	GE 20	FASTEST HOUR MPH	DIR.	D A T E
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																								
ARAPAHOE BASIN, COLO	47.1	.05	9	16	2.24	.90	16	7	4	1	0	75	21	60	67	34.7	18.0	26.4	14.5	60	27	--	--	--
BEAR LAKE, RMNP, CO	16.7	.07	6	16	1.13	.40	16	5	2	0	0	61	1	32	44	39.9	27.0	33.5	--	--	--	--	--	--
BERTHOUD PASS, COLO	33.4	.07	8	18	2.47	.56	16	7	5	2	0	--	--	--	--	39.9M	19.7M	29.8M	--	--	--	--	--	--
COPPER MTN, COLO	32.5	.07	8	18	2.29	.60	18	6	4	2	0	59	21	39	48	42.9	20.2	31.5	18.0M	71M	42M	42	250	6
GOTHIC, COLO	25.5	.08	7	1	2.03	.51	1	5	4	1	0	52	1	12	33	48.9	24.9	36.9	--	--	--	--	--	--
MONARCH, COLO	15.6	.10	8	1	1.63	.90	1	4	3	1	0	--	--	--	--	--	--	--	--	--	--	--	--	--
RED MTN PASS U.S.550	13.5	.06	5	18	.85	.30	18	5	2	0	0	74	1	50	62	40.2M	21.9M	31.1M	--	--	--	--	--	--
WINTER PARK 1E, COLO	17.7	.08	7	18	1.93	.44	16	6	3	0	0	--	--	--	--	44.7M	21.0M	32.8M	--	--	--	--	--	--
INTERMOUNTAIN																								
SNOWBIRD, UTAH	17.0	.14	9	18	2.72	1.18	18	4	3	3	0	41	1	0	13	53.3	32.4	42.9	16.0	62	35	--	--	--
WEST COAST																								
ALPINE MEADOWS, CAL	.0	.10	0	1	1.66	.83	17	3	2	2	0	45	1	0	23	52.1	34.9	43.5	25.3	96	89	65	230	17
ALYESKA, ALASKA	10.1	.07	5	18	4.37	2.97	16	5	3	2	1	159	1	117	138	38.2	25.4	31.8	3.8	0	0	14	240	11
MAMMOTH MTN, CALIF	1.0	.09	1	1	.09	.09	1	0	0	0	0	53	1	20	34	50.5M	29.0M	39.7M	--	--	--	--	--	--
MT. HOOD MDWS, ORE.	34.0	.19	11	6	10.61	2.93	17	9	8	7	4	65	6	48	56	--	--	--	--	--	--	--	--	--
MT. RAINIER PARADISE	50.0	.10	13	5	10.81	1.80	17	16	13	9	2	130	6	103	115	43.2	28.1	35.7	--	--	--	--	--	--
SQUAW VALLEY, CALIF	.0	.10	0	1	1.14	.74	13	2	2	1	0	31	1	0	9	57.7	31.4	44.5	--	--	--	--	--	--
SUGAR BOWL, CALIF	2.0	--	2	12	--	--	--	--	--	--	--	94	1	60	73	52.1M	30.8M	41.5M	12.1M	35M	21M	--	--	--

-- DATA INCOMPLETE OR MISSING
M-ONE OR MORE DAYS OF RECORD MISSING-IF AVERAGE VALUE IS ENTERED, LESS THAN 10 DAYS RECORD IS MISSING
IF M IS ENTERED IN WIND SPEED COLUMN, LESS THAN 37 6-HOUR PERIODS ARE MISSING
GE--GREATER THAN OR EQUAL TO

U.S. FOREST SERVICE
WESTWIDE WEATHER AND AVALANCHE NETWORK
FORT COLLINS, COLORADO

APRIL 1992
AVALANCHE SUMMARY

AREA	TOTAL AVALS THIS MONTH NO.	TOTAL AVALS THIS WINTER NO.	DATES OF FIRST AVAL	DATES OF LAST AVAL	MAX IN ONE DAY NO.	DATE	NUMBER OF DAYS WITH AVALS	SLUFF	TYPE OF AVALANCHE: ARTIFICIAL	NATURAL	SLABS: HARD	SOFT	WET	LOOSE	FRACTURE LINE HEIGHTS IN FEET: GE 2 NUMBER	GE 4 NUMBER	GE 6 NUMBER	VERTICAL DESCENT IN FEET: GE 200 NUMBER	GE 500 NUMBER	GE 1000 NUMBER	MAX FEET	AVALS ACROSS MAJOR ACCESS ROADS NO.
CENTRAL AND SOUTHERN ROCKY MOUNTAINS																						
ARAPAHOE BASIN, COLO	26	110	11	28	10	12	5	0	1	25	0	6	16	4	5	0	0	24	15	1	1100	0
BEAVER CREEK, COLO	2	2	4	7	1	7+	2	0	0	2	0	0	2	0	2	0	0	1	0	0	200	0
BERTHOUD PASS, COLO	12	66	1	20	11	20	2	0	1	11	0	11	1	0	9	3	1	11	3	1	1000	0
BERTHOUD PASS U.S.40	1	9	20	20	1	20	1	0	0	1	0	1	0	0	0	0	0	1	1	1	1000	0
GOTHIC, COLO	30	155	4	29	4	11+	13	0	0	30	0	0	30	0	18	3	1	30	22	11	2500	0
LOVELAND PASS U.S. 6	2	17	20	20	2	20	1	0	1	1	0	2	0	0	2	0	0	2	0	0	400	0
RED MTN PASS U.S.550	5	27	6	7	3	7	2	0	5	0	0	0	0	5	0	0	0	5	4	2	1800	5
URAD MINE, COLO	2	14	20	20	2	20	1	0	0	2	0	2	0	0	2	1	0	2	2	1	1000	0
VAIL, COLO	2	20	9	12	1	12+	2	0	2	0	0	0	0	2	0	0	0	1	0	0	250	0
INTERMOUNTAIN																						
JACKSON HOLE, WYO	2	98	3	5	1	5+	2	0	1	1	0	0	2	0	2	1	0	2	2	0	900	0
SUN VALLEY, IDAHO	2	15	2	5	1	5+	2	0	2	0	1	0	1	0	2	0	0	1	1	1	1400	0
WEST COAST																						
ALYESKA, ALASKA	19	258	15	27	10	16	5	0	11	8	0	10	1	8	4	0	0	19	18	14	2800	0
MT. HOOD MEADOWS	21	244	6	18	7	6	5	0	20	1	0	12	9	0	3	0	0	13	4	1	1500	0

-- = DATA INCOMPLETE OR MISSING
GE = GREATER THAN OR EQUAL TO
+ = ALSO OCCURRED ON OTHER DATES